



FERMILAB

Accelerator Physics Center

MEMO: 12/7/09

TO: Mike Andrews, AD ES&H Liaison for HINS Program

CC: Roger Dixon, Accelerator Division Head
John Anderson, Accelerator Division ES&H Department Head
Mike Gerardi, AD RSO

FROM: Robert C. Webber, HINS Program Manager

RE: Request for Approval to Commence HINS 2.5 MeV Beam Commissioning

This memo is a request for approval to begin commissioning 2.5 MeV proton beam acceleration through the HINS RFQ in the Meson Detector Building. This request is consistent with HINS plans cooperatively developed during the past two years.

Specifically and exclusively, the request encompasses activities for commissioning and operation of a proton beam in the "initial HINS 2.5 MeV configuration" as referenced by Dr. Joanna M. Livengood, DOE Fermilab Site Manager, in her April 27, 2009 SAD Waiver letter to Dr. Bruce Chrisman, Fermilab COO.

The purpose of HINS 2.5 MeV beam operation is to verify the functionality of the HINS Radio Frequency Quadrupole (RFQ) as an accelerator and to make preliminary measurements of its output beam parameters.

In particular, we request approval to commission the pulsed, 2.5 MeV beam up to a beam current of 25 mA with a duty factor of 0.1%. This corresponds to 1.6×10^{14} particles per second. Individual pulses will not exceed one millisecond in duration. These beam operations will be attended, intermittent, and of limited calendar duration.

In support of this request, the HINS team submits the following documents, publicly available in Beams-doc-3514, and all other documentation cited therein:

1. HINS Test Facility at Meson System Overview of Hazards
2. Fermilab HINS Program 2.5 MeV Beam - Design, Operations, and Safety Assessment
3. HINS 2.5 MeV Pre-commissioning Check-list
4. HINS 2.5 MeV Beam Commissioning Plan
5. HINS Aluminum Coil Beam Absorber Heating Analysis

Looking ahead, several significant next steps in the HINS program require active support from AD ES&H:

- Modification of Safety Interlocks to support CW superconducting cavity operation in the 325 MHz Cavity Test Cave (needed Feb 2010)
- Installation of Safety Interlocks for the HINS Linac enclosure (~Mar 2010)

- Review and approval of HINS SAD and Shielding Assessment before we can proceed to beam energies beyond 2.5 MeV (SAD submission ~ Feb 2010)

We believe the necessary information to establish final Test Cave and Linac enclosure Safety Interlock logic is contained in the attached "Overview of Hazards" document.

The HINS team has proactively involved the AD ES&H Department in program planning discussions from the earliest stages. Future HINS progress at MDB depends on continuing guidance and support from the ES&H Department.